

# **ELECTRONIC PILOT IGNITION WITH SAFETY SWITCH**

## **BACKGROUND OF THE INVENTION**

### **5 I. Field of the Invention**

This invention relates generally to an electronic pilot ignition with safety switch and, more specifically, to an electronic pilot ignition that users have to press the safety switch first to start the electronic pilot for flame.

### **10 II. Description of the Prior Art**

Heretofore, it is known that an ignition (as shown in FIG 1) has a rectangular shell body (10), a tube (12) stretches out from one side of the shell body (10), a gas tank (14) and an electronic pilot (16) are inside the shell body (10); a gas outlet (142) is on top of the gas tank (14), a soft tube (144) connects to the gas outlet (142), the other side  
15 of the soft tube (144) stretches out to the top of the tube (12) and connects to the ignition area (not shown in FIG) of the ignition (1); a pulling board (146) is on the proper location of the gas outlet (142) of the gas tank (14), an orientation hole (18) is on the proper location of the shell body (10), a pressing part (19) is inside the orientation hole (18) and exposes external to the shell body (10), the bottom of the pressing part  
20 (19) touches to the starter (162) of the electronic pilot (16), one end of the electrode of the electronic pilot (16) connects to the ignition point of the ignition (1), the other end of the electrode connects to the inner brim of the tube (12) to form a ignition loop.

Referring to FIG 1, a brake mechanism (2) is above the pressing part (19) and gas tank (14), a moveable body (20) of the brake mechanism (2) is inside the shell body  
25 (10); a turning rod (not shown in FIG) corresponding to the moveable body (20) is external to the shell body (10), one side of the turning rod passes through the shell body (10) and connects to the moveable body (20), the other end of the turning rod has a convex for users to move; a elastic part is on one side of the turning rod (not shown in

FIG), one side of the elastic part is against on one side the moveable body (20), the other end of the elastic part is fixed on the inner side of the shell body (10); when the strength of the turning rod is released, the bounce back power can return the turning rod back; a linking rod (24) links freely to the moveable body (20) and locates near the pressing part (19), a second elastic part (242) is on the linking rod (24), the pressure of the linking rod (24) is released, the second elastic part (242) can push the linking rod (24) back to the original.

By above structure, when users turn the turning rod of the brake mechanism (2) and move the linking rod (24) to above the gas tank (14), referring to FIG 1, users press pressing part (19), the pressing part (19) brings the linking rod (24) downward to press the pulling board (146), the pulling board (146) pulls the gas outlet (142) of the gas tank (14), the gas of the gas tank (14) flows through the soft tube (144) to ignition area; at the same time the pressing part (19) presses the starter (162) of the electronic pilot (16) to make the electronic pilot (16) generates a pilot fire and ignites the gas; when the turning rod is not moved, the linking rod (24) is not on the gas tank (14) position, even if users press the pressing part (19) can only generate pilot fire by the electronic pilot (16) and can not have the gas of the gas tank (14) flow into the soft tube (144), no fire is on. The safety mechanism can prevent carelessly press the pressing part (19) to turn on fire and generate accident.

When the ignition (1) is in use, the turning rod might not be moved along easily, the linking rod (24) can not go to top of the gas tank (14), while the pressing part (19) is pressed can only have the electronic pilot (16) generate pilot fire without turning on fire, that makes users very inconvenient and disturbing. The ignition (1) can achieve safety purpose but also cause inconvenience.

## SUMMARY OF THE INVENTION

It is therefore a primary object of the invention to provide an electronic pilot ignition with safety switch comprising a hollow body with a safety switch near center,

the safety switch consists of a body and a pressing part, the pressing part is placed freely onto the top of the body to move forward or backward; a brake bar installed freely inside the pressing part to prevent the pressing part from moving forward, a brim of the hollow body locates corresponding to the connection of the safety switch, the  
5 brim blocks the pressing brim on the bottom of the pressing part to prevent the safety switch from being pushed down; while ignition, users have to move the brake bar to the blocking position and push the pressing part forward, the pressing brim on the bottom of the pressing part moves away from the brim of the hollow body first, then users can press down the safety switch to ignite the flame for safer and more convenient purpose.

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### **BRIEF DESCRIPTION OF THE DRAWINGS**

The accomplishment of the above-mentioned object of the present invention will become apparent from the following description and its accompanying drawings which disclose illustrative an embodiment of the present invention, and are as follows:

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FIG 1 is a perspective view of the prior art;

FIG 2 is a perspective view of the present invention;

FIG 3 is a cross-sectional view of the safety switch of the present invention;

FIG 4 is an application view of the safety switch of the present invention;

20 FIG 5 is a cross-sectional view of the present invention;

FIG 6 is another cross-sectional view of the safety switch with present invention;

FIG 7 is another application view of the safety switch with present invention;

FIG 8 is one another cross-sectional view of the safety switch with present invention;

FIG 9 is one another application view of the safety switch with present invention.

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### **DESCRIPTION OF THE PREFERRED EMBODIMENT**

Referring to FIG 2, the present invention is composed of a hollow body (31) grippable by users, a tube (32) stretches out from one side of the hollow body (31), a

ignition area (321) in on the end of the tube (32), an open is on the top center of the hollow body (31), a safety switch (33) is on the open (not shown in FIG), one end of the safety switch (33) is connected on the inner side of the hollow body (31) to let the free end of the safety switch (33) to be pressed downward (as shown in FIG 5). Referring to  
5 FIG 2, FIG 3 and FIG 5, the safety switch (33) consists of a body (331), a brake bar (335) is freely inside the body (331), the top of the brake bar (335) exposes externally to the open (333) of the body (331), the bottom (3352) of the brake bar (335) leans on the stopper (337) of the hollow body (31) to block the bottom (3352) of the brake bar (335), users can be prevented from accidentally pressing down the safety switch (33)  
10 and cause fire disaster.

Referring to FIG 2 and FIG 5, a starting bar (35) stretches downward and locates on the bottom of the free end of the safety switch (33), one side of the starting bar (35) connects to the starter (361) of the electronic pilot (36) of the ignition (3), the other side of the starting bar (35) connects to the gas outlet (37); the other side of the gas outlet  
15 (37) connects to the gas valve (381) of the gas tank (38); a gas tube (382) is on the gas valve (381) of the gas tank (38), the other side of the gas tube (382) stretches to the end of the tube (32) of the ignition (3) and connects to the ignition area (321) in on the end of the tube (32); the electronic pilot (36) connects to the ignition area (321) of the tube (32) with a wire and connects to the inner side of the tube (32) with another wire to  
20 form a pilot fire generating loop; when the safety switch (33) is pressed down to activate the starting bar (35) triggering the starter (361) of the electronic pilot (36) and the gas outlet (37), the electronic pilot (36) generates pilot fire at the ignition area (321) of the ignition (3), at the same time the gas outlet (37) pulls out the gas valve (381) of the gas tank (38), the gas of the gas tank (38) flows to the ignition area (321), flame is  
25 generated.

At the ignition time, referring to, FIG 3, FIG 4 and FIG 5, users have to push the brake bar (335) to make the bottom (3352) out of the corresponding blocking location of the stopper (337) to press down the safety switch (33) for ignition. Users have to grip

the ignition (3) with one hand and press the safety mechanism of the safety switch (33) with one finger to push the safety switch (33) for ignition for safer and more convenient purpose.

In the above application, referring to FIG 3, FIG 4 and FIG 5, the brake bar (335) can move right or left in a horizontal rectangular open (333) of the body (331), the bottom (3352) of the brake bar (335) stretches out from the horizontal rectangular open (333); users can push the top to move the brake bar (335) left and have the bottom (3352) of the brake bar (335) lean on the stopper (337) of the hollow body (31), the free end of the safety switch (33) can not be pressed down due to the stopper (337) blocks the bottom (3352) of the brake bar (335); when the stopper (337) is moved to left, the bottom (3352) of the brake bar (335) is away from the location of the stopper (337) to make the safety switch to press down.

Referring to FIG 3 and FIG 4, an elastic part (3351) (spring for example) is on the center of the brake bar (335) and the inner brim of the body (331); the elasticity of the elastic part (3351) can push the brake bar (335) back to the original location after being moved.

Referring to FIG 3, FIG 4 and FIG 5, the brake bar (335) can move right or left in a horizontal rectangular open (333) of the body (331), the bottom (3352) of the brake bar (335) stretches out from the horizontal rectangular open (333); users can push the top to move the brake bar (335) left and have the bottom (3352) of the brake bar (335) lean on the stopper (337) of the hollow body (31), the free end of the safety switch (33) can not be pressed down due to the stopper (337) blocks the bottom (3352) of the brake bar (335); when the stopper (337) is moved to left, the bottom (3352) of the brake bar (335) is away from the location of the stopper (337) to make the safety switch to press down.

Referring to FIG 5, an elastic part (339) (spring for example) is on the free end of the body (331) of the safety switch (33) and the inner brim of the hollow body (31); the elasticity of the elastic part (339) can push the safety switch (33) back to the original

location after being moved.

On above application and referring to FIG 2, the gas outlet (37) contains a “>” shape driving mechanism (371) and an “L” shape gearing mechanism (373); the center of the “>” shape driving mechanism (371) connects to the inner brim of the hollow body (31), one end of the “>” shape driving mechanism (371) touches the starting bar (35) of the safety switch (33), the other end of the “>” shape driving mechanism (371) connects to one end of the “L” shape gearing mechanism (373); the right angle side of the “L” shape gearing mechanism (373) connects to the inner brim of the hollow body (31); when one end of the “L” shape gearing mechanism (373) touches the “>” shape driving mechanism (371), the other end of the “L” shape gearing mechanism (373) connects to the gas valve (381) of the gas tank (38), while users press the safety switch (33), the starting bar (35) brings the “>” shape driving mechanism (371) along, the “>” shape driving mechanism (371) can pull the “L” shape gearing mechanism (373) and open the gas valve (381) of the gas tank (38).

On above application and referring to FIG 2 and FIG 3, a plurality numbers of slippage-proof stripe (3353) are on the top of the brake bar (335); when users push the brake bar (335), the slippage-proof stripe (3353) can increase the friction, users can push brake bar (335) smoother.

On above application and referring to FIG 2, a regulator (not shown in FIG) is installed on the connection between the gas valve (381) and the gas tank (38), an adjustable rod (383) is on the regulator, the adjustable rod (383) exposes from the hollow body (31) that is farther from the other side of the gas tank (38), the adjustable rod (383) adjusts the flow of gas from the gas tank (38).

On above application and referring to FIG 2, a gas inlet valve (not shown in FIG) is on the gas tank (38) that located on the other side of the gas valve (381), an open hole (not shown in FIG) of the hollow body (31) that corresponding to the gas inlet valve so the gas charging tank can have the inlet tube pass through the opening and connect to the gas inlet valve to inflate gas into the gas tank (38), users do not have to throw away

the empty gas tank (38) to cause waste.

Another application of the present invention: referring to FIG 6 and FIG 7, the brake bar (335) can move up or down in a vertical rectangular open (333) of the body (331), the top of the brake bar (335) exposes on the vertical rectangular open (333);  
5 users can push the top to make the brake bar (335) move downward, the end (3355) of the brake bar (335) stretches up and against the stopper (337) on top, the safety switch (33) can not be pressed down for the end (3355) of the brake bar (335) is blocked by the stopper (337); when the brake bar (335) is moved downward, the end (3355) of the brake bar (335) is away from the location of the stopper (337) to make the safety switch  
10 (33) to press down.

On above application and referring to FIG 6 and FIG 7, an elastic part (3351) (spring for example) is on the center of the brake bar (335) and the inner brim of the body (331), the elasticity of the elastic part (3351) can push the brake bar (335) back to the original location after being moved.

One another application of the present invention, referring to FIG 8 and FIG 9, the brake bar (335) can move up or down in a vertical rectangular open (333) of the body (331), the top of the brake bar (335) exposes on the vertical rectangular open (333); users can push the top to make the brake bar (335) move upward, the end (3355) of the brake bar (335) stretches up and against the stopper (337) on top, the safety  
20 switch (33) can not be pressed down for the end (3355) of the brake bar (335) is blocked by the stopper (337); when the brake bar (335) is moved downward; a side open (3357) is on the side of the end (3355) of the brake bar (335), when the brake bar (335) is moved upward, the end (3355) of the brake bar (335) is away from the location of the stopper (337), at the same time, the stopper (337) can pass through the side open  
25 (3357) to let the safety switch (33) be pressed down.

On above application, referring to FIG 8 and FIG 9, an elastic part (3351) (spring for example) is on the center of the brake bar (335) and the inner brim of the hollow body (31); the elasticity of the elastic part (3351) can push the brake bar (335) back to

the original location after being moved.

While a preferred embodiment of the invention has been shown and described in detail, it will be readily understood and appreciated that numerous omissions, changes and additions may be made without departing from the spirit and scope of the invention.